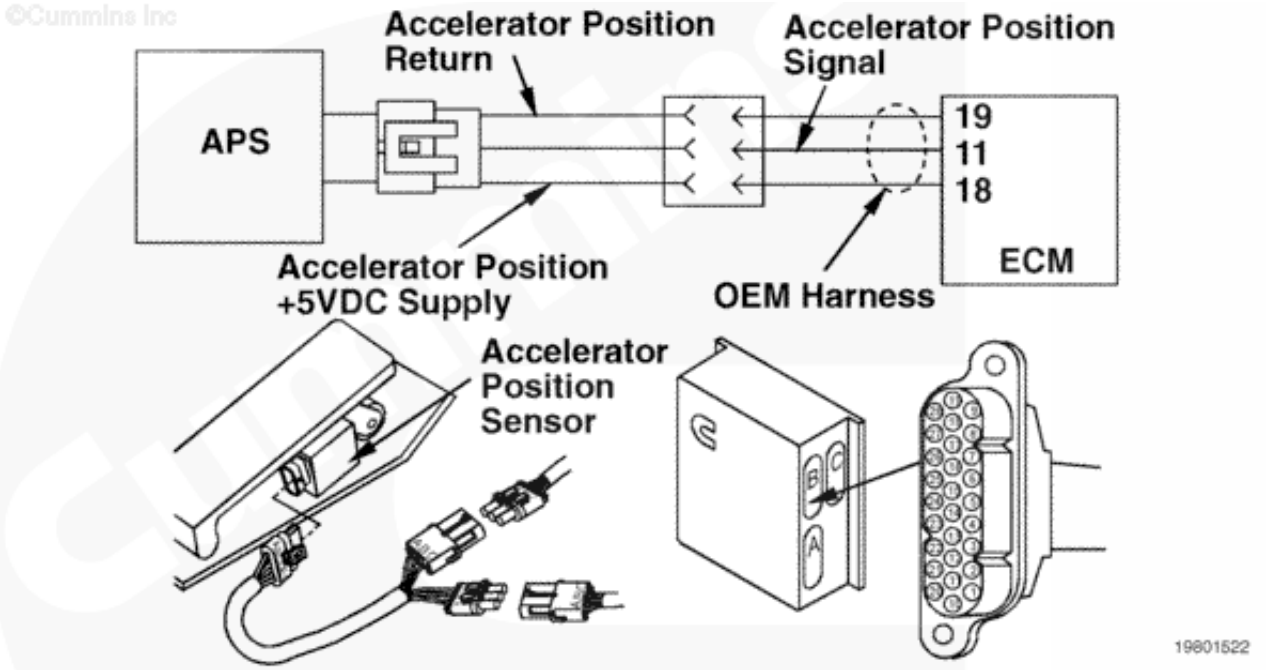
FAULT CODE 132 (SSS)
Accelerator Position Sensor Circuit

Overview

CODE	REASON	EFFECT
Fault Code: 132 PID: P091 SPN: 91 FMI: 4 LAMP: Red SRT: 00-084	Low voltage detected at the accelerator position signal pin 11 of the OEM harness connector.	Severe derate (power and speed).

Accelerator Position Sensor Circuit



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Circuit Description

The accelerator position sensor signals the Electronic Control Module (ECM) when the accelerator is depressed. The circuit contains three wires: +5 VDC supply (wire 18), return (wire 19), and signal (wire 11).

Component Location

The accelerator position sensor (APS) is located on the accelerator pedal.

Shop Talk

If all wiring and sensors check good, replace the APS circuit wires between the accelerator pedal and the ECM with new wires. Run them through, or around, the bulkhead without using the bulkhead connector. Test with these wires. If fault clears, replace the OEM harness. Seal the bulkhead openings around the wires to prevent toxic, noxious fumes from seeping into the cab.

Test voltage levels of the SSS with breakout cable, Part Number 3824892. The ECM and accelerator pedal **must** be calibrated to each other for proper engine response. Required when a new accelerator pedal is installed, replaced, an ECM is replaced, a new calibration is downloaded to the ECM, or the accelerator pedal wiring is disconnected while keyswitch “ON”. With keyswitch “ON”, slowly push the accelerator to the floor and release; do this three times. This recalibrates the ECM and accelerator pedal.

Note: The three wires in the accelerator position sensor circuit **must** be twisted together.

Cautions and Warnings

CAUTION

To avoid pin and harness damage, use the following test leads when taking a measurement:
Part Number 3822758 - male Deutsch/AMP/Metri-Pack test lead
Part Number 3822917 - female Deutsch/AMP/Metri-Pack test lead
Part Number 3824892 - accelerator position sensor breakout cable.

CAUTION

To avoid pin and harness damage, use the following test lead when taking a measurement:
Part Number 3824892 - accelerator position sensor breakout cable.

CAUTION

To avoid damaging a new ECM, all other active fault codes must be investigated prior to replacing the ECM.

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Troubleshooting Steps

STEPS		SPECIFICATIONS
STEP 1.	Check the accelerator pedal.	
	STEP 1A. Verify the accelerator position sensor is connected to the OEM harness.	Sensor connected

	STEP 1B. Inspect the harness and the accelerator position sensor connector pins.	No damaged pins
	STEP 1C. Measure the idle resistance value.	Correct resistance value
STEP 2.	Check the OEM harness.	
	STEP 2A. Inspect the harness and the ECM connector pins.	No damaged pins
	STEP 2B. Check for continuity in circuit.	Less than 10 ohms
	STEP 2C. Check for a short circuit to ground.	More than 100k ohms
	STEP 2D. Check for a short circuit.	More than 100k ohms
STEP 3.	Check the ECM.	
	STEP 3A. Check the accelerator position supply for proper voltage.	4.75 to 5.25 VDC
	STEP 3B. Check for the appropriate ECM response.	Fault Code 132 inactive ; Fault Code 131 active
	STEP 3C. Check ECM signal pin resistance.	Less than 100k ohms
STEP 4.	Clear the fault code.	
	STEP 4A. Disable the fault code.	Fault Code 132 inactive
	STEP 4B. Clear the inactive fault codes.	All faults cleared

Guided Step 1 - Check the accelerator pedal.

Guided Step 1A - Verify the accelerator position sensor is connected to the OEM harness.

Conditions

- Turn keyswitch “OFF".

Action

- Verify that the accelerator position sensor is connected to the OEM harness.

OK	NOT OK
Sensor connected	Connect the OEM harness
Go to 1B	**Go to 4A**

Guided Step 1B - Inspect the harness and the accelerator position sensor connector pins.

Conditions

- Turn keyswitch "OFF".
- Disconnect the OEM harness from the accelerator position sensor.
- Flush and clean the connector pins using electronic contact cleaner, Part Number 3824510.

Action

- bent or broken pins
- pushed back or expanded pins
- corroded pins
- moisture in or on the connector
- missing or damaged seals
- dirt or debris in or on the connector pins.

OK	NOT OK
No damaged pins	Repair the damaged pins. Repair or replace the OEM harness or sensor, whichever has the damaged pins. • Flush the dirt, debris, or moisture from the

	connector pins using electronic contact cleaner, Part Number 3824510. • Repair the engine harness. Refer to Procedure 019-201 and 019-202 in the Troubleshooting and Repair Manual, Industrial CELECT™ Plus System, Bulletin 3666130. • Replace the OEM harness. Refer to the OEM Troubleshooting and Repair Manual. • Replace the accelerator position sensor. Refer to the OEM Troubleshooting and Repair Manual.
Go to 1C	**Go to 4A**

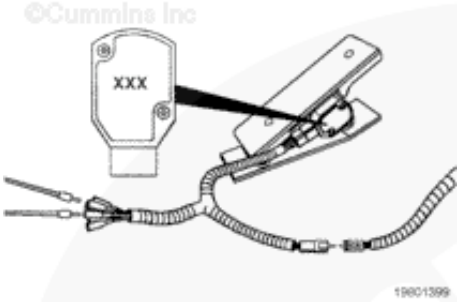
Guided Step 1B - Measure the idle resistance value.

CAUTION

To avoid pin and harness damage, use the following test lead when taking a measurement:
Part Number 3824892 - accelerator position sensor breakout cable.

Conditions

- Turn keyswitch "OFF".
- Install the breakout cable, Part Number 3824892, to the SSS.
- Do **not** connect the breakout cable to the OEM harness.



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Action

- With the accelerator pedal released (on-idle), measure the resistance from pin 3 (APS signal) to pin 4 (APS return) on the breakout cable.

Note: Resistance value should be the same as the Idle Resistance Value stamped on the SSS cover, ±20 ohms.	
OK	NOT OK
Correct resistance value	Replace the SSS. Refer to the OEM Troubleshooting and Repair Manual.
Go to 2A	Go to 4A

Guided Step 2 - Check the OEM harness.

Guided Step 2A - Inspect the harness and the ECM connector pins.

CAUTION

To avoid damaging a new ECM, all other active fault codes must be investigated prior to replacing the ECM.

Conditions

- Turn keyswitch "OFF".
- Disconnect the OEM harness connector from the ECM.
- Disconnect the OEM harness from the bulkhead connector.
- Disconnect the OEM harness from the accelerator position sensor.
- Flush and clean the connector pins using electronic contact cleaner, Part Number 3824510.

Action • bent or broken pins • pushed back or expanded pins • corroded pins • moisture in or on the connector • missing or damaged seals • dirt or debris in or on the connector pins.	
OK	**NOT OK**
No damaged pins	Repair the damaged pins. Repair or replace the OEM harness or ECM, whichever has the damaged pins. • Flush the dirt, debris, or moisture from the connector pins using electronic contact cleaner, Part Number 3824510. Refer to Procedure 019-203 in the Troubleshooting and Repair Manual, Industrial CELECT™ Plus System, Bulletin 3666130. • Repair the OEM harness. Refer to Procedure 019-203 in the Troubleshooting and Repair Manual, Industrial CELECT™ Plus System, Bulletin Number 3666130-023666130. • Replace the OEM harness. Refer to the OEM Troubleshooting and Repair Manual. • Replace the ECM. Refer to Procedure 019-031 in the Troubleshooting and Repair Manual, Industrial CELECT™ Plus System, Bulletin 3666130. • Replace the o-ring on the 28-pin connector if it is damaged or missing. Refer to Procedure 019-203 in the Troubleshooting and Repair Manual, Industrial CELECT™ Plus System, Bulletin 3666130.
Go to 2B	**Go to 4A**

Guided Step 2B - Check for continuity in circuit.

Conditions • Turn keyswitch “OFF”. • Connect bulkhead connector. • Disconnect the Accelerator Position Sensor. • Disconnect the OEM harness connector from the ECM. **Action** • Inspect wiring to APS, check wiring diagram for color code. • Measure the resistance from pin 18 of the OEM harness connector to +5 VDC supply pin at the APS connector. • Measure the resistance from pin 11 of the OEM harness connector to the signal pin of the APS connector. • Measure the resistance from pin 19 of the OEM harness connector to the return pin of the APS connector.	
OK	NOT OK
Less than 10 ohms	Repair or replace the APS wiring. Refer to the OEM Troubleshooting and Repair Manual.
Go to 2C	Go to 4A

Guided Step 2C - Check for a short circuit to ground.

CAUTION

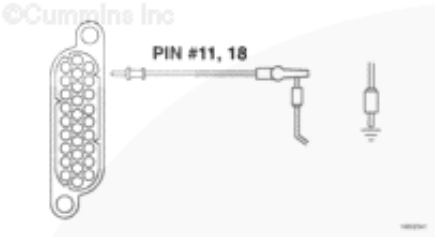
To avoid pin and harness damage, use the following test lead when taking a measurement:
Part Number 3822758 - male Deustch/AMP/Metri-Pack test lead.

Conditions

- Turn keyswitch "OFF".
- Disconnect the OEM harness connector from the ECM.
- Disconnect the OEM harness from the accelerator position sensor.

Action

- Measure the resistance from pin 18 of the OEM harness to engine block ground.
- Measure the resistance from pin 11 of the OEM harness to engine block ground.



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OK	NOT OK
More than 100k ohms	Repair or replace the OEM harness. Refer to the OEM Troubleshooting and Repair Manual.
Go to 2D	Go to 4A

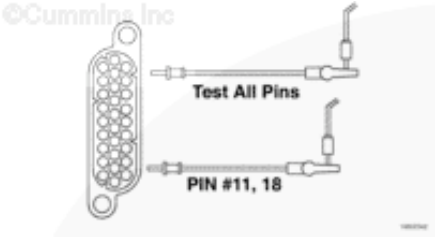
Guided Step 2D - Check for a short circuit.

⚠ CAUTION ⚠

To avoid pin and harness damage, use the following test lead when taking a measurement:
Part Number 3822758 - male Deutsch/AMP/Metri-Pack test lead.

Conditions

- Turn keyswitch "OFF".
- Disconnect the OEM harness connector from the ECM.
- Disconnect the OEM harness from the



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accelerator position sensor.

Action

- Measure resistance from pin 18 of the OEM harness connector to all other pins in the connector.
- Measure the resistance from pin 11 of the OEM harness connector to all other pins in the connector.

OK	NOT OK
More than 100k ohms	Repair or replace the OEM harness. Refer to the OEM Troubleshooting and Repair Manual.
Go to 3A	Go to 4A

Guided Step 3 - Check the ECM.

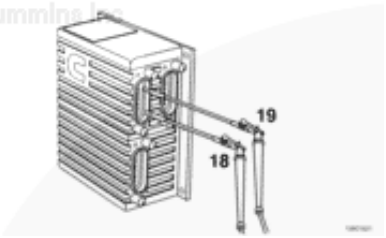
Guided Step 3A - Check the accelerator position supply for proper voltage.

Conditions

- Connect the OEM harness to the accelerator position sensor.
- Disconnect the OEM harness connector from the ECM.
- Turn keyswitch “ON”.

Action

- Measure the voltage from pin 18 to pin 19 in the OEM port of the ECM.



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OK	NOT OK
4.75 to 5.25 VDC	Replace the ECM. Refer to Procedure 019-031 in the Troubleshooting and Repair Manual, Industrial CELECT™ Plus System, Bulletin 3666130.
Go to 3B	**Go to 4A**

Guided Step 3B - Check for the appropriate ECM response.

CAUTION

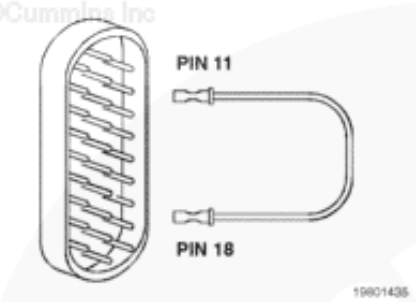
To avoid pin and harness damage, use the following test lead when performing this procedure:
Part Number 3822917 - female Deutsch/AMP/Metri-Pack test lead.

Conditions

- Disconnect the OEM harness connector from the ECM.
- Install Part Number 3822917, as a jumper wire, between pin 11 and pin 18 of the OEM ECM port.
- Turn keyswitch “ON”.

Action

- Read the fault codes using Compulink™, Part Number 3823549, Echek™, Part Number 3824437, or INSITE™, Part Number 3824638.



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OK	NOT OK
Fault Code 132 inactive; Fault Code 131 active	Replace the ECM. Refer to Procedure 019-031 in the Troubleshooting and Repair Manual,

	Industrial CELECT™ Plus System, Bulletin 3666130.
Go to 3C	Go to 4A

Guided Step 3C - Check ECM signal pin resistance.

CAUTION

To avoid pin and harness damage, use the following test lead when taking a measurement:
Part Number 3822917 - female Deutsch/AMP/Metri-Pack test lead.

Conditions

- Turn keyswitch “OFF”.
- Disconnect the OEM harness connector from the ECM.

Action

- Measure the resistance from pin 11 of the ECM OEM port to pin 19 in the ECM OEM port; use test lead, Part Number 3822917.

OK	NOT OK
Less than 100k ohms	Replace the ECM. Refer to Procedure 019-031.
Go to 4A	Go to 4A

Guided Step 4 - Clear the fault code.

Guided Step 4A - Disable the fault code.

Conditions

- Connect all the components.

Action

- Start the engine and let it idle for one (1) minute.
- Verify Fault Code 132 is inactive.

OK	NOT OK
Fault Code 132 inactive	Return to the troubleshooting steps or contact your local Cummins Authorized Repair Location if all the steps have been completed and checked again.
Go to 4B	Go to 1A

Guided Step 4B - Clear the inactive fault codes.

Conditions

- Connect all the components.

Action

• Erase the inactive fault codes using Compulink™, Part Number 3823549, Echek™, Part Number 3824437, or INSITE™, Part Number 3824638.	
OK	**NOT OK**
All faults cleared	Troubleshoot any remaining active fault codes.
Repair complete	**Appropriate troubleshooting chart**

Last Modified: 27-Oct-2003